

Claims

1. An apparatus for manipulation and cleaning of a contact lens, said apparatus
5 comprising an at least one eyepiece, an at least one body, and a cleaning housing, said at
least one eyepiece when attached to said at least one body defining an opening into said
at least one body and said at least one eyepiece comprising:
- (i) a head for engaging a contact lens; and
 - (ii) an eyelid opening means,
- 10 said at least one body containing a contact lens manipulation means comprising an
elongate arm defining a longitudinal axis and an arm movement means
communicating with said arm, said arm movement means effecting
movement of said arm between a retracted position and an extended position;
said apparatus arranged such that when said at least one eyepiece is attached to said at
15 least one body and the face of a user is in contact with said at least one
eyepiece, an eyeball and upper and lower eyelids of said user being
positioned over said opening, said eyelid opening means is engageable with
said upper and lower eyelids to retain them open, said arm being engaged
with said head and being extendable to contact said eyeball of said user and
20 effect insertion and removal of a contact lens into and from said eye;
said cleaning housing comprising contact lens cleaning means and being engageable with
said at least one eyepiece, such that when said at least one eyepiece and said
cleaning housing are engaged, said contact lens cleaning means can effect
cleaning of a contact lens engaged with said head of said at least one
25 eyepiece.
2. An apparatus according to Claim 1, said apparatus comprising two eyepieces,
a body and a cleaning housing, said eyepieces being removably attachable to said body and

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said cleaning housing being engageable with said eyepieces, such that when at least one eyepiece is engaged with said cleaning housing, said contact lens cleaning means can effect cleaning of any contact lens engaged with said head of said eyepiece.

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3. An apparatus according to Claim 2, wherein only one of said eyepieces is attachable to said body at a time.

4. An apparatus according to any of the preceding Claims wherein said arm is capable of releasably engaging said head.

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5. An apparatus according to any of the preceding Claims wherein said arm extends through said opening to engage said head.

15 6. An apparatus according to any of the preceding Claims wherein said arm movement means effects movement of said arm between a retracted position in which said arm is contained within said body of said apparatus, and an extended position in which said arm extends through said opening.

20 7. An apparatus according to Claim 1 wherein said arm is attached to said head

8. An apparatus according to any of the preceding Claims, wherein said eyelid opening means comprises a plurality of arms, each of said arms being movable within a guide track positioned within said eyepiece, wherein said arms, responsive to contact against said upper and lower eyelids, move along said guide tracks engaging and retaining said upper and lower eyelids in an open position.

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9. An apparatus according to any of the preceding Claims, wherein said contact lens manipulation means comprises a rack associated with said arm, said rack engaging with a worm associated with said arm movement means.
- 5 10. An apparatus according to any of the preceding Claims wherein said contact lens manipulation means comprises an electric motor to effect movement of said arm between said extended and retracted positions.
11. An apparatus according to any of the preceding Claims wherein said head is
10 resiliently deformable between a first extended state and a second contracted state, wherein said head is capable of gripping a contact lens when said head is in said contracted state.
12. An apparatus according to any of the preceding Claims, said contact lens
15 manipulation means additionally comprising a head manipulating means to effect gripping of said contact lens by said head.
13. An apparatus according to Claim 12 wherein said head manipulating means
20 comprises a longitudinally elongate sleeve positioned coaxial with and radially extended from said arm and defining first and second ends, said arm being positioned radially inwards of said sleeve and defining a head-contacting end, said first end of said sleeve terminating adjacent to said head-contacting end of said arm, wherein said head and arm are movable relative to said sleeve along said longitudinal axis between a first position in which said head does not engage said sleeve and is in said first extended state, and a
25 second position in which said head engages said sleeve and is deformed into said second contracted state, thereby effecting gripping of said contact lens.
14. An apparatus according to Claim 13, wherein said contact lens gripping means comprises a coupling control means, said coupling control means being capable of

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coupling and uncoupling said sleeve and said arm between coupled and uncoupled states, wherein in said coupled state said arm moves in conjunction with said sleeve, and in said uncoupled state said arm moves independently of said sleeve.

5 15. An apparatus according to any of the preceding Claims, said contact lens cleaning means comprising an at least one cleaning arm defining a cleaning head capable of contacting a contact lens, and a cleaning arm movement means communicating with said cleaning arm, said cleaning arm movement means effecting movement of said cleaning head for cleaning said contact lens.

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16. An apparatus according to any of the preceding claims, additionally comprising visual field test means.

17. A method of inserting or removing at least one contact lens into or from an
15 eye of a user using an apparatus for manipulation of a contact lens, said apparatus comprising an at least one eyepiece and an at least one body, said at least one eyepiece when attached to said at least one body defining an opening into said at least one body and said at least one eyepiece comprising:

(i) a head for engaging a contact lens; and

20 (ii) an eyelid opening means,

said at least one body containing a contact lens manipulation means comprising an elongate arm defining a longitudinal axis and an arm movement means communicating with said arm, said arm movement means effecting movement of said arm between a retracted position and an extended position;
25 said apparatus arranged such that when said at least one eyepiece is attached to said at least one body and the face of a user is in contact with said at least one eyepiece, an eyeball and upper and lower eyelids of said user being positioned over said opening, said eyelid opening means is engageable with said upper and lower eyelids to retain them open, said arm being engaged

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with said head and being extendable to contact said eyeball of said user and effect insertion and removal of a contact lens into and from said eye;

said method comprising the steps of:

- 5 (i) contacting the face of a user with said at least one eyepiece, an eyeball and upper and lower eyelids of the user being positioned over said opening;
- (ii) operating said apparatus so as to engage said upper and lower eyelids and retain them open and extend said arm engaged with said head to contact said eyeball of said user and effect insertion or removal of a
10 contact lens into or from said eye.

18. A method of inserting or removing at least one contact lens according to claim 17, said apparatus additionally comprising a cleaning housing comprising contact lens cleaning means and being engageable with said eyepiece, such that when said at least
15 one eyepiece and cleaning housing are engaged, said contact lens cleaning means can effect cleaning of a contact lens engaged with said head of said eyepiece, the method additionally comprising the steps of:

- (i) engaging said cleaning housing with said at least one eyepiece having a contact lens engaged with said head;
- 20 (ii) operating said apparatus so as to effect cleaning of a contact lens engaged with said head of said eyepiece.